Changes to previous uncertainty components

Beverage QC Reproducibility Data (%RSD)

A percent relative standard deviation was calculated from the data produced when analyzing a beverage check standard over the period of 1/13/15 to 12/14/15.

%RSD = 1.3875%

Replicate Agreement Requirement (Std $Unc_{Replicates}$)

No changes were made for this component.

Certificate of Analysis - Calibration Reference Standards (Std $Unc_{stds\ cals}$)

The most current calibration certificates for reference standards used were reviewed and It was determined that no changes were needed for this component.

Certificate of Analysis - Control Reference Standards (Std $Unc_{stds\ ctrls}$)

The most current calibration certificates for reference standards used were reviewed and it was determined that no changes were needed for this component.

Addition of new uncertainty components

No new uncertainty components were added to the budget.

Combined standard uncertainty using component updates

The following table summarizes changes made to component values and the new estimated combined uncertainty (items that changed are highlighted).

Uncertainty Component	4/27/2015	12/31/2015
%RSD (Beverage Working Standard)	1.2114	1.3875
Std $Unc_{Replicates}$	1.7321	1.7321
Std $Unc_{stds\ cals}$	0.175	0.175
Std $Unc_{stds\ ctrls}$	0.175	0.175
Combined Uncertainty (k=2)	4.2562	4.4661

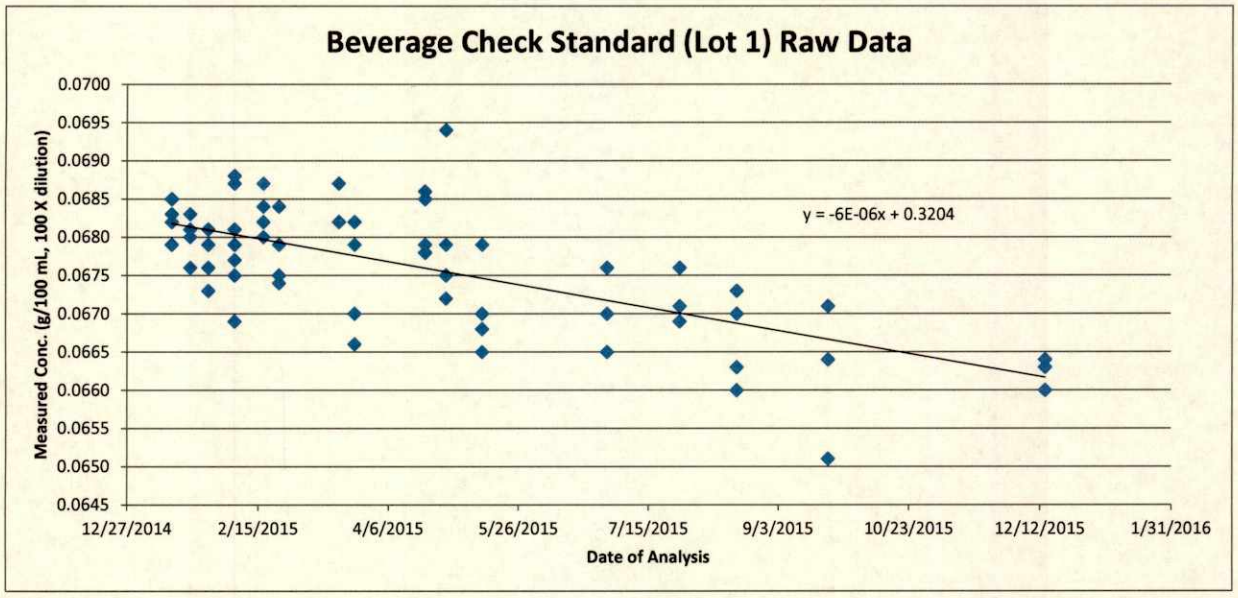
Reported uncertainty

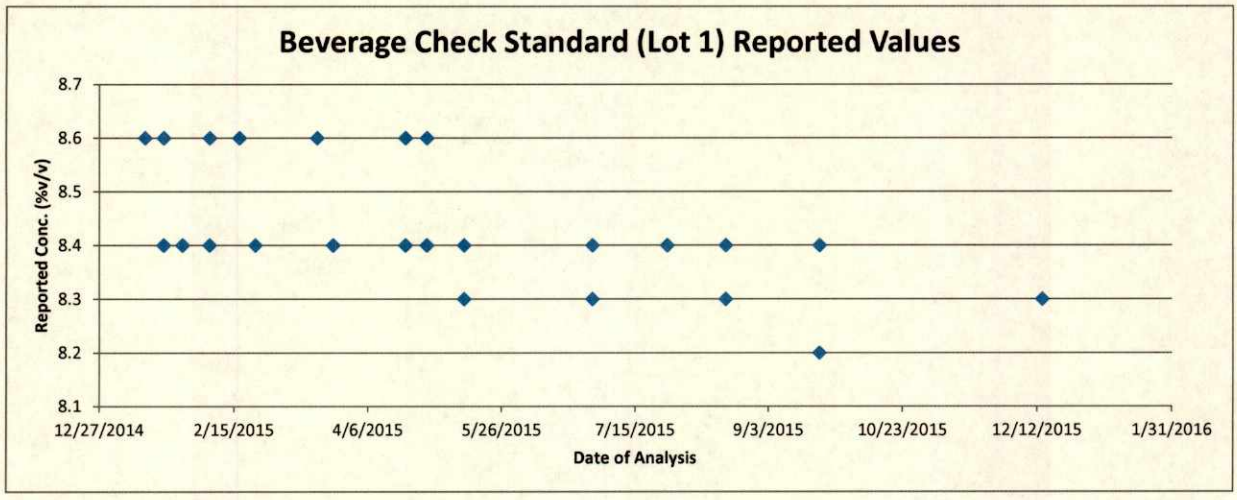
The expanded combined standard uncertainty rounded to 2 significant figures is:

Expanded Combined Standard Uncertainty = ± 4.5%

This is an increase when compared to estimated measurement uncertainty issued on 4/27/15.

Further review of the beverage check standard data shows a decline in reported concentration over time. This decline inflates the calculated %RSD. A reasonable explanation for this decline is ethanol depletion within the check standard lot during long term storage. Currently, aliquots of the check standard are stored in two milliliter screw-top auto-sampler vials at refrigeration temperatures. Investigating the use of different storage containers, lower storage temperatures, and/or lot expiration dates is suggested.





N	33
Mean	8.439394
SD	0.117099
%RSD	1.387526

Beverage Check Standard (Lot 1)

Analyst	Instrument	Diluter	Control	Lot	Value	Average	ABV
CRF	HS2	ML600-1	Beverage	1	0.0679		
CRF	HS2	ML600-1	Beverage	1	0.0683	0.068	8.6
CRF	HS2	ML600-1	Beverage	1	0.0682		
CRF	HS2	ML600-1	Beverage	1	0.0685	0.068	8.6
COB	HS1	ML600-1	Beverage	1	0.0676		
COB	HS1	ML600-1	Beverage	1	0.0681	0.067	8.4
COB	HS1	ML600-1	Beverage	1	0.0680		
COB	HS1	ML600-1	Beverage	1	0.0683	0.068	8.6
BMB	HS2	ML600-1	Beverage	1	0.0676		
BMB	HS2	ML600-1	Beverage	1	0.0679	0.067	8.4
BMB	HS2	ML600-1	Beverage	1	0.0681		
BMB	HS2	ML600-1	Beverage	1	0.0673	0.067	8.4
CRF	HS2	ML600-1	Beverage	1	0.0681		
CRF	HS2	ML600-1	Beverage	1	0.0677	0.067	8.4
CRF	HS2	ML600-1	Beverage	1	0.0687		
CRF	HS2	ML600-1	Beverage	1	0.0688	0.068	8.6
BMB	HS1	ML600-1	Beverage	1	0.0669		
BMB	HS1	ML600-1	Beverage	1	0.0675	0.067	8.4
BMB	HS1	ML600-1	Beverage	1	0.0679		
BMB	HS1	ML600-1	Beverage	1	0.0681	0.068	8.6
COB	HS2	ML600-1	Beverage	1	0.0684		
COB	HS2	ML600-1	Beverage	1	0.0680	0.068	8.6
COB	HS2	ML600-1	Beverage	1	0.0687		
COB	HS2	ML600-1	Beverage	1	0.0682	0.068	8.6
COB	HS2	ML600-1	Beverage	1	0.0674		
COB	HS2	ML600-1	Beverage	1	0.0679	0.067	8.4
COB	HS2	ML600-1	Beverage	1	0.0684		
COB	HS2	ML600-1	Beverage	1	0.0675	0.067	8.4
COB	HS1	ML600-1	Beverage	1	0.0687		
COB	HS1	ML600-1	Beverage	1	0.0682	0.068	8.6
bmb	HS1	ML600-1	Beverage	1	0.0666		
bmb	HS1	ML600-1	Beverage	1	0.0679	0.067	8.4
bmb	HS1	ML600-1	Beverage	1	0.0682		
bmb	HS1	ML600-1	Beverage	1	0.0670	0.067	8.4
BMB	HS1	ML600-1	Beverage	1	0.0678		
BMB	HS1	ML600-1	Beverage	1	0.0679	0.067	8.4
BMB	HS1	ML600-1	Beverage	1	0.0686		
BMB	HS1	ML600-1	Beverage	1	0.0685	0.068	8.6
COB	HS2	ML600-1	Beverage	1	0.0672		
COB	HS2	ML600-1	Beverage	1	0.0675	0.067	8.4
COB	HS2	ML600-1	Beverage	1	0.0679		
COB	HS2	ML600-1	Beverage	1	0.0694	0.068	8.6
COB	HS2	ML600-1	Beverage	1	0.0670		
COB	HS2	ML600-1	Beverage	1	0.0665	0.066	8.3
COB	HS2	ML600-1	Beverage	1	0.0679		

COB	HS2	ML600-1	Beverage	1	0.0668	0.067	8.4
BMB	HS1	ML600-1	Beverage	1	0.0670		
BMB	HS1	ML600-1	Beverage	1	0.0665	0.066	8.3
BMB	HS1	ML600-1	Beverage	1	0.0676		
BMB	HS1	ML600-1	Beverage	1	0.0670	0.067	8.4
BMB	HS2	ML600-1	Beverage	1	0.0669		
BMB	HS2	ML600-1	Beverage	1	0.0671	0.067	8.4
BMB	HS2	ML600-1	Beverage	1	0.0676		
BMB	HS2	ML600-1	Beverage	1	0.0676	0.067	8.4
COB	HS2	ML600-1	Beverage	1	0.0660		
COB	HS2	ML600-1	Beverage	1	0.0663	0.066	8.3
COB	HS2	ML600-1	Beverage	1	0.0673		
COB	HS2	ML600-1	Beverage	1	0.0670	0.067	8.4
COB	HS2	Wilma	Beverage	1	0.0651		
COB	HS2	Wilma	Beverage	1	0.0664	0.065	8.2
COB	HS2	Wilma	Beverage	1	0.0671		
COB	HS2	Wilma	Beverage	1	0.0671	0.067	8.4
COB	HS2	Wilma	Beverage	1	0.0663		
COB	HS2	Wilma	Beverage	1	0.0663	0.066	8.3
COB	HS2	Wilma	Beverage	1	0.0660		
COB	HS2	Wilma	Beverage	1	0.0664	0.066	8.3